

AMENDMENTS TO THE CLAIMS

Please amend claims 1-3, 6 and 7 as follows:

1. (Currently Amended) A data communication system comprising a data transmitter, a data receiver, and a network for connecting the data transmitter to the data receiver, wherein said data transmitter transmits data packets to the data receiver, said data receiver transmits an ACK packet for informing the data transmitter of the confirmation of the delivery of the received data packet, and said data transmitter detects the loss of the transmitted data packet based on the content of the ACK packet and retransmits the data packet, which has been detected to be lost, whereby error control of data packets is carried out,

said data transmitter comprising:

a counter for counting the number of round trips of data packets transmitted; and

means for storing, for each transmitted data packet, ~~the~~ a relationship between the data packet and the counter value at the time of the transmission of the data packet and,

means for judging, when the stored counter value is two or more smaller than the current counter value, ~~judges~~ that the data packet corresponding to the stored counter value has been lost, ~~followed by the retransmission of the data packet which has been judged to be lost.~~

2. (Currently Amended) The data communication system according to claim 1, wherein

the data transmitter further comprises means for incorporating, as round trip notification information, the current counter value into the data packet transmitted,

the data receiver further comprises means for incorporating, as round trip response information, the counter value, ~~contained~~ that was incorporated into the data packet transmitted as the round trip notification information in the received data packet, into an ACK packet for the received data packet, and

the data transmitter further comprises means for increasing the counter value by one in the case where the value contained as the round trip response information in the received ACK packet is equal to said counter value.

3. (Currently Amended) A data communication system comprising a data transmitter, a data receiver, and a network for connecting the data transmitter to the data receiver, wherein said data transmitter transmits data packets to the data receiver, said data receiver transmits an ACK packet for informing the data transmitter of the confirmation of the delivery of the received data packet, and said data transmitter detects the loss of the transmitted data packet based on the content of the ACK packet and retransmits the data packet, which has been detected to be lost, whereby error control of data packets is carried out,

said data transmitter comprising:

a counter for counting the number of round trips of data packets transmitted;

first and second tables for storing predetermined data;

means for storing, for each transmitted data packet, the relationship between the data packet and the time at the point of the transmission of the data packet in the first table;

means for storing, in the second table, for each counter value in the counter, the relationship between the counter value and the time at the point of the transmission of the first data packet after the counter has indicated said counter value; and

means ~~which for judging~~, when the value of the time stored in the first table is smaller than the value of the time corresponding to a counter value which is two smaller than the current counter value stored in the second table, ~~judges that the data packet corresponding to the time stored in the first table has been lost, followed by the retransmission of the data packet which has been judged to be lost.~~

4. (Original) The data communication system according to claim 3, wherein

the data transmitter further comprises means for incorporating, as time notification information, the current time into the data packet transmitted,

the data receiver further comprises means for incorporating, as time response information, the time, contained as the time notification information in the received data packet, into an ACK packet for the received data packet, and

the data transmitter further comprises means for increasing the counter value by one in the case where the time contained as the time response information in the received ACK packet is equal to or larger than the current time value stored, in the second table, in the relationship with the current counter value.

5. (Original) A data communication system comprising a data transmitter, a data receiver, and a network for connecting the data transmitter to the data receiver, wherein said data transmitter transmits data packets to the data receiver, said data receiver transmits an ACK packet for informing the data transmitter of the confirmation of the delivery of the received data packet, and said data transmitter detects the loss of the

transmitted data packet based on the content of the ACK packet and retransmits the data packet, which has been detected to be lost, whereby error control of data packets is carried out and, wherein, during error control in its period between the detection of the loss of a data packet and the confirmation of the delivery of the data packet by the data transmitter, transmission flow control is carried out by a transmission window,

said data transmitter functioning to release, from the transmission window, a closed window to an extent corresponding to the total size of data, for which delivery confirmation has been newly made by ACK packets received from the data receiver during the error control, thereby rendering the released window transmittable.

6. (Currently Amended) A data communication method comprising the steps of: providing a data communication system comprising a data transmitter, a data receiver, and a network for connecting the data transmitter to the data receiver; transmitting data packets by the data transmitter to the data receiver; transmitting an ACK packet for informing, by the data receiver, the data transmitter of the confirmation of the delivery of the received data packet; detecting the loss of the transmitted data packet, by the data transmitter, based on the content of the ACK packet; and retransmitting the data packet, which has been detected to be lost, by the data transmitter, thereby performing error control of data packets, wherein

the data transmitter ~~is provided with a counter for~~ counting the number of round trips of data packets transmitted, and

for each transmitted data packet, stores the relationship between the data packet and the counter value at the point of the transmission of the data packet ~~is stored~~, and, when the stored counter value is two or more smaller than the current counter value at that time, judges that the data packet corresponding to the stored counter value is ~~regarded as having been lost, followed by the retransmission of the lost data packet.~~

7. (Currently Amended) The data communication method according to claim 6, wherein

the data transmitter incorporates, as round trip notification information, the current counter value into the data packet transmitted,

the data receiver incorporates, as round trip response information, the counter value, ~~contained~~ that was incorporated into the data packet transmitted as the round trip notification information in the received data packet, into an ACK packet for the received data packet, and

the data transmitter increases the counter value by one in the case where the value contained as the round trip response information in the received ACK packet is equal to said counter value.

8. (Original) A data communication method comprising the steps of: providing a data communication system comprising a data transmitter, a data receiver, and a network for connecting the data transmitter to the data receiver; transmitting data packets by the data transmitter to the data receiver; transmitting, by the data receiver, an ACK packet for informing the data transmitter of the confirmation of the delivery of the received data packet; detecting the loss of the transmitted data packet, by the data transmitter, based on the content of the ACK packet; and retransmitting the data packet, which has been detected to be lost, by the data transmitter, thereby performing error control of data packets, wherein

the data transmitter is provided with a counter for counting the number of round trips of data packets transmitted, and first and second tables for storing predetermined data,

for each transmitted data packet, the relationship between the data packet and the time at the point of the transmission of the data packet is stored in the first table,

for each counter value in the counter, the relationship between the counter value and the time at the point of the transmission of the first data packet after the counter has indicated said counter value is stored in the second table, and

when the value of the time stored in the first table is smaller than the value of the time corresponding to a counter value which is two smaller than the current counter value stored in the second table, the data packet corresponding to the time stored in the first table is regarded as having been lost, followed by the retransmission of the data packet which has been judged to be lost.

9. (Original) The data communication method according to claim 8, wherein

the data transmitter incorporates, as time notification information, the time at that point into the data packet transmitted,

the data receiver incorporates, as time response information, the time, contained as the time notification information in the received data packet, into an ACK packet for the received data packet, and

the data transmitter increases the counter value by one in the case where the time contained as the time response information in the received ACK packet is equal to or larger than the time stored in the relationship with the current counter value stored in the second table.

10. (Original) A data communication method comprising the steps of:
providing a data communication system comprising a data transmitter, a data receiver, and

a network for connecting the data transmitter to the data receiver; transmitting data packets by the data transmitter to the data receiver; transmitting, by the data receiver, an ACK packet for informing the data transmitter of the confirmation of the delivery of the received data packet; detecting the loss of the transmitted data packet, by the data transmitter, based on the content of the ACK packet; retransmitting the data packet, which has been detected to be lost, by the data transmitter, thereby performing error control of data packets; and performing transmission flow control by a transmission window, during error control in its period between the detection of the loss of a data packet and the confirmation of the delivery of the data packet by the data transmitter, wherein

the data transmitter functions to release, from the transmission window, a closed window to an extent corresponding to the total size of data, for which delivery confirmation has been newly made by ACK packets received from the data receiver during the error control, and consequently renders the released window transmittable.

11. (Previously Presented) A computer readable recording medium comprising, recorded thereon, a program which is used in executing the data communication method according to claim 6 by means of a computer.

12. (Previously Presented) A computer readable recording medium comprising, recorded thereon, a program which is used in executing the data communication method according to claim 7 by means of a computer.

13. (Previously Presented) A computer readable recording medium comprising, recorded thereon, a program which is used in executing the data communication method according to claim 8 by means of a computer.

14. (Previously Presented) A computer readable recording medium comprising, recorded thereon, a program which is used in executing the data communication method according to claim 9 by means of a computer.

15. (Previously Presented) A computer readable recording medium comprising, recorded thereon, a program which is used in executing the data communication method according to claim 10 by means of a computer.